CLAIMS:

1. An apparatus comprising:

a first cell, said first cell comprising a plurality of first elements, said first elements being controllable between a non-reflective state, in which electromagnetic radiation having a first polarization is reflected to a first extent, and a reflective state, in which said electromagnetic radiation having a first polarization is reflected to a second extent, said second extent being greater than said first extent; and

a second cell, superimposed on the first cell, said second cell comprising a plurality of second elements, said second elements being controllable between a non-reflective state, in which electromagnetic radiation having a second polarization is reflected to a third extent, and a reflective state, in which said electromagnetic radiation having a second polarization is reflected to a fourth extent, said fourth extent being greater than said third extent,

characterized in that said first and second elements are arranged so that said first polarization is different from said second polarization.

2. An apparatus according to claim 1, wherein the electromagnetic radiation has a wavelength of between 300 nm and 800 nm.

3. An apparatus according to claim 1 or 2, wherein said first polarization and said second polarization are circular polarizations of opposite handedness.

4. An apparatus according to claim 1, wherein a polarization-altering element is arranged between said first and second cells.

5. An apparatus according to claim 4, wherein said polarization-altering element is a halfwave plate.

6. An apparatus according to claim 1, wherein at least one lens is arranged between said first and second cells.

7. An apparatus according to claim 1, wherein said first and second cells are at a certain distance from each other.

8. An apparatus according to claim 6 or 7, wherein said first and second cells are arranged to transmit a first and a second image to the first and the second eye of an observer.

9. An apparatus according to claim 1, wherein said first and second electromagnetic radiation have different wavelengths.

10. An apparatus according to claim 1, wherein at least one of said first and second cells is at least partially made of cholesteric texture liquid crystal (CTLC).

11. A reflective display comprising an apparatus according to claim 1.

12. A portable device comprising a reflective display according to claim 11.

13. A portable device according to claim 12, wherein said device is one of a mobile telephone, a portable computer, an electronic calendar, an electronic book, a television set or a video game control.

14. A method of providing varying brightness in an apparatus as defined in claim 1, the method comprising the steps of:

manipulating elements in one of said first and second cells into their reflective state when a lower brightness is desired, and

manipulating essentially superimposed elements in both of said first and second cells into their reflective state when a higher brightness is desired.

15. A method of providing varying brightness in an apparatus as defined in claim 1, said apparatus additionally comprising at least a third cell, said third cell comprising third elements, said elements being controllable between a non-reflective state, in which third electromagnetic radiation having a third polarization is reflected to a fifth extent, and a reflective state, in which said third electromagnetic radiation is reflected to a sixth extent, said sixth extent being greater than said fifth extent, said method comprising the steps of:

manipulating essentially superimposed elements in a number N of cells, N being equal to or greater than one but smaller than the total number of cells, into their reflective state when a lower brightness is desired, and

manipulating essentially superimposed elements in a number N+1 of cells into their reflective state when a higher brightness is desired.

16. A method of providing two images in a reflective display according to claim 11, the method comprising the steps of:

manipulating the first elements to reflect electromagnetic radiation in the shape of a first image, said first image consisting of electromagnetic radiation having a first polarization,

manipulating the second elements to reflect electromagnetic radiation in the shape of a second image, said second image consisting of electromagnetic radiation having a second polarization.

17. A method according to claim 16, wherein said apparatus in said reflective display additionally comprises at least a third cell, said third cell comprising third elements, said elements being controllable between a non-reflective state, in which third electromagnetic radiation having a third polarization is reflected to a fifth extent, and a reflective state, in which said third electromagnetic radiation is reflected to a sixth extent, said sixth extent being greater than said fifth extent, said method comprising the step of:

manipulating the third elements to reflect electromagnetic radiation in the shape of a third image, said third image consisting of electromagnetic radiation having a third polarization.

18. A method according to claim 16 or 17, wherein said method comprises the steps of:

providing at least two separate filter elements, a first of said two filter elements being capable of transmitting electromagnetic radiation having said first polarization and not transmitting electromagnetic radiation having said second polarization, and a second of said two filter elements being capable of transmitting electromagnetic radiation having said second polarization and not transmitting electromagnetic radiation having said first polarization,

arranging the first filter element between the reflective display and any intended receiver of a first image, produced by the first elements, and

arranging the second filter element between the reflective display and any intended receiver of a second image, produced by the second elements.

19. A method according to claim 16, wherein said method comprises the step of:

arranging said first and second cells to transmit said first and second images in different directions.

20. A method according to claim 19, wherein said first and second cells are arranged to transmit a first and a second image to a first and a second eye of an observer.

21. A method according to claim 18, wherein the first and second filter elements are arranged in front of the left and the right eye, respectively, of an observer.

22. A method according to claim 19 for an apparatus according to claim 8, wherein a first image and a second image are adapted to coincide with the left and the right eye of an observer.

23. A method according to any one of claims 16 to 22, wherein said first and second images are identical.

24. A method according to any one of claims 20 to 22, wherein said first and second images are perspective views creating a 3D sensation when observed.

CLAIMS (with reference numbers):

1. An apparatus comprising:

a first cell (10b), said first cell comprising a plurality of first elements (34b), said first elements being controllable between a non-reflective state, in which electromagnetic radiation having a first polarization is reflected to a first extent, and a reflective state, in which said electromagnetic radiation having a first polarization is reflected to a second extent, said second extent being greater than said first extent; and

a second cell (10a), superimposed on the first cell, said second cell comprising a plurality of second elements (34a), said second elements being controllable between a non-reflective state, in which electromagnetic radiation having a second polarization is reflected to a third extent, and a reflective state, in which said electromagnetic radiation having a second polarization is reflected to a fourth extent, said fourth extent being greater than said third extent,

characterized in that said first and second elements (34b, 34a) are arranged so that said first polarization is different from said second polarization.

2. An apparatus according to claim 1, wherein the electromagnetic radiation has a wavelength of between 300 nm and 800 nm.

3. An apparatus according to claim 1 or 2, wherein said first polarization and said second polarization are circular polarizations of opposite handedness.

4. An apparatus according to claim 1, wherein a polarization-altering element (35) is arranged between said first and second cells (10b, 10a).

5. An apparatus according to claim 4, wherein said polarization-altering element (35) is a halfwave plate.

6. An apparatus according to claim 1, wherein at least one lens is arranged between said first and second cells (10b, 10a).

7. An apparatus according to claim 1, wherein said first and second cells (10b, 10a) are at a certain distance (36) from each other.

8. An apparatus according to claim 6 or 7, wherein said first and second cells (10b, 10a) are arranged to transmit a first and a second image to the first and the second eye of an observer.

9. An apparatus according to claim 1, wherein said first and second electromagnetic radiation have different wavelengths.

10. An apparatus according to claim 1, wherein at least one of said first and second cells (10b, 10a) is at least partially made of cholesteric texture liquid crystal (CTLC).

11. A reflective display comprising an apparatus according to claim 1.

12. A portable device comprising a reflective display according to claim 11.

13. A portable device according to claim 12, wherein said device is one of a mobile telephone, a portable computer, an electronic calendar, an electronic book, a television set or a video game control.

14. A method of providing varying brightness in an apparatus as defined in claim 1, the method comprising the steps of:

manipulating elements in one of said first and second cells (10b, 10a) into their reflective state when a lower brightness is desired, and

manipulating essentially superimposed elements in both of said first and second cells (10b, 10a) into their reflective state when a higher brightness is desired.

15. A method of providing varying brightness in an apparatus as defined in claim 1, said apparatus additionally comprising at least a third cell, said third cell comprising third elements, said elements being controllable between a non-reflective state, in which third electromagnetic radiation having a third polarization is reflected to a fifth extent, and a

reflective state, in which said third electromagnetic radiation is reflected to a sixth extent, said sixth extent being greater than said fifth extent, said method comprising the steps of:

manipulating essentially superimposed elements in a number N of cells, N being equal to or greater than one but smaller than the total number of cells, into their reflective state when a lower brightness is desired, and

manipulating essentially superimposed elements in a number N+1 of cells into their reflective state when a higher brightness is desired.

16. A method of providing two images in a reflective display according to claim 11, the method comprising the steps of:

manipulating the first elements to reflect electromagnetic radiation in the shape of a first image (42b), said first image consisting of electromagnetic radiation having a first polarization,

manipulating the second elements to reflect electromagnetic radiation in the shape of a second image (42a), said second image consisting of electromagnetic radiation having a second polarization.

17. A method according to claim 16, wherein said apparatus in said reflective display additionally comprises at least a third cell, said third cell comprising third elements, said elements being controllable between a non-reflective state, in which third electromagnetic radiation having a third polarization is reflected to a fifth extent, and a reflective state, in which said third electromagnetic radiation is reflected to a sixth extent, said sixth extent being greater than said fifth extent, said method comprising the step of:

manipulating the third elements to reflect electromagnetic radiation in the shape of a third image, said third image consisting of electromagnetic radiation having a third polarization.

18. A method according to claim 16 or 17, wherein said method comprises the steps of:

providing at least two separate filter elements (44b, 44a), a first (44b) of said two filter elements being capable of transmitting electromagnetic radiation having said first polarization and not transmitting electromagnetic radiation having said second polarization, and a second (44a) of said two filter elements being capable of transmitting electromagnetic

radiation having said second polarization and not transmitting electromagnetic radiation having said first polarization,

arranging the first filter element between the reflective display (40) and any intended receiver of a first image (42b), produced by the first elements, and

arranging the second filter element between the reflective display and any intended receiver of a second image (42a), produced by the second elements.

19. A method according to claim 16, wherein said method comprises the step of:

arranging said first and second cells (10b, 10a) to transmit said first and second images (42b, 42a) in different directions.

20. A method according to claim 19, wherein said first and second cells (10b, 10a) are arranged to transmit a first and a second image (42b, 42a) to a first and a second eye of an observer.

21. A method according to claim 18, wherein the first and second filter elements (44b, 44a) are arranged in front of the left and the right eye, respectively, of an observer.

22. A method according to claim 19 for an apparatus according to claim 8, wherein a first image (42b) and a second image (42a) are adapted to coincide with the left and the right eye of an observer.

23. A method according to any one of claims 16 to 22, wherein said first and second images (42b, 42a) are identical.

24. A method according to any one of claims 20 to 22, wherein said first and second images (42b, 42a) are perspective views creating a 3D sensation when observed.